

REMARKS

Applicants have cancelled non-elected claims 3-5 without prejudice or disclaimer, and in particular without prejudice to the filing of a Divisional application or applications directed to the subject matter thereof.

Applicants have amended claims 1, 2, 6 and 7 to delete the expression "as connected to one another", in initially defining the stirring rotor; and have amended claims 2, 6 and 7 in order to further clarify the definition of the present invention, especially in light of the rejections under the second paragraph of 35 USC §112, in Item 2 on page 2 of the Office Action mailed June 24, 2003. Specifically, claim 2 has been amended to recite a stirring rotor having an outer diameter and provided with a support member at one end of the stirring rotor and another support member at the other end thereof; and to recite that the outer diameter of the another support member, positioned at a side adjacent the outlet at the lower part at the other end of the cylindrical vessel, is smaller than the outer diameter of the stirring rotor. Claim 7 has been similarly amended. Claims 6 and 7 have also been amended to recite that the stirring rotor within the vessel is divided into a plurality of stirring blocks having structure based upon the viscosity of the liquid feed.

In connection with these amendments to claims 1, 2, 6 and 7, note, for example, Fig. 4, particularly together with the description in connection therewith on pages 20-27 of Applicants' specification.

Initially, it is respectfully requested that the present amendments be entered. Noting, for example Fig. 4 of Applicants' original disclosure, especially together with the

description in connection therewith as referred to previously herein, it is respectfully submitted that the present amendments do not raise any new issues, including any issue of new matter. It is respectfully submitted that the present amendments in substance clarify the previously considered claims, in light of bases given for the rejection under the second paragraph of 35 USC §112, which bases were set forth for the first time in the Office Action mailed June 24, 2003. Emphasizing that amendments to the claims in substance address issues raised for the first time in the Office Action mailed June 24, 2003, it is respectfully submitted that the present amendments are clearly timely. Moreover, it is respectfully submitted that the present amendments, addressing and overcoming issues raised by the Examiner under the second paragraph of 35 USC §112, as will be discussed infra, at the very least materially limit issues remaining in the application; and, at the very least, present the claims in better form for Appeal.

In view of the foregoing, it is respectfully submitted that the necessary showing has been made under 37 CFR § 1.116(c); and that, accordingly, entry of the present amendments is clearly proper, notwithstanding finality of the Office Action mailed June 24, 2003.

Furthermore, attention is respectfully directed to the enclosed Terminal Disclaimer. As this Terminal Disclaimer clearly overcomes the double patenting rejection set forth in Item 4 bridging pages 4 of 5 of the Office Action mailed June 24, 2003, present entry thereof in the above-identified application is clearly proper, notwithstanding finality of the Office Action mailed June 24, 2003.

Applicants respectfully traverse the rejection of their claims under the second paragraph of 35 USC §112, as set forth in Item 2 on page 2 of the Office Action mailed June 24, 2003, particularly insofar as this rejection is applicable to the claims as presently amended.

Thus, the Examiner has rejected claims 2 and 7, based upon alleged unclear recitations with respect to the relationship between the support member positioned at the side of the outlet and the plural support members at both ends of the stirring rotor; and the "support member", in claims 2 and 7. Claims 2 and 7 have been amended to recite that the stirring rotor includes, inter alia, a support member at one end of the stirring member and another support member at the other end thereof; and to define the outer diameter of the "another support member" (that is, the support member at the other end of the stirring rotor), positioned at a side adjacent the outlet at the lower part at the other end of the cylindrical vessel. Accordingly, it is respectfully submitted that the two support members of the stirring rod are sufficiently clearly defined, so as to clearly satisfy the requirements of the second paragraph of 35 USC §112.

That is, it is respectfully submitted that, as presently amended, the relationship is clear with respect to the support member (that is, the another support member) positioned at a side adjacent the outlet at the lower part at the other end of the cylindrical vessel, and the support member and another support member at respective ends of the stirring rod. Moreover, by reciting "another" support member in the last paragraph of claims 2 and 7, it is respectfully submitted that the "support member"

referred to as having an outer diameter smaller than the outer diameter of the stirring rotor is clear.

While not to be limiting, and for explanation purposes only, it is to be noted that the support member at one end of the stirring rotor and the another support member at the other end of the stirring rotor corresponds to rotor supports 2a and 2b of Fig. 4 of Applicants' original disclosure, and it is respectfully submitted that, as presently amended, claims 2 and 7 are sufficiently definite to satisfy the requirements of the second paragraph of 35 USC §112, with respect to the support members.

Moreover, noting allegations made by the Examiner in the last paragraph of Item 2, on page 2 of the Office Action mailed June 24, 2003, claims 6 and 7 have been amended to recite that the stirring rotor within the vessel is divided into a plurality of stirring blocks having structure based upon the viscosity of the liquid feed. As can be appreciated from, for example, Fig. 4 of Applicants' original disclosure, the stirring rotor includes a plurality of stirring blocks depending on the viscosity between the inlet and outlet, a distance between adjacent hollow disks being different in the various stirring blocks, and with different inner diameters of the hollow disks and different scraping plate configurations in the different stirring blocks. Note, for example, page 21, line 16 to page 22, line 18, of Applicants' specification, together with Fig. 4, showing low viscosity stirring blocks (see page 21, lines 16-24), intermediate viscosity stirring blocks (note page 21, line 24 to page 22, line 5) and high viscosity stirring blocks (note page 22, lines 5-11). As presently amended, it is respectfully submitted that the various stirring blocks are sufficiently defined so as to satisfy the requirements of the

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second paragraph of 35 USC §112, particularly in light of the definition of the stirring blocks in Applicants' disclosure.

Generally, noting claims 2, 6 and 7 as presently in the application, it is respectfully submitted that the components defined therein are sufficiently definite such that one of ordinary skill in the art would know whether any specific reactor fell within or outside the scope of the present claims. Under the present circumstances, it is respectfully submitted that the second paragraph of 35 USC §112 requires nothing more. See In re Moore, 169 USPQ 236 (CCPA 1971).

As can be appreciated, Applicants have amended their claims by the present amendments herein, in a bona fide attempt to address issues raised by the Examiner under the second paragraph of 35 USC §112, and to obviate such issues. If the Examiner is of the opinion that any issues remain under the second paragraph of 35 USC §112, the Examiner is respectfully requested to contact the undersigned for a discussion of language for overcoming any such remaining issues. The Examiner is thanked in advance for cooperating with this request.

The obviousness-type double patenting rejection as set forth in Item 4 bridging pages 4 and 5 of the Office Action mailed June 24, 2003, is noted. Submitted concurrently herewith is a Terminal Disclaimer, with respect to U.S. Patent No. 6,096,838, for overcoming this obviousness-type double patenting rejection. This Terminal Disclaimer is being presently submitted so as to obviate issues remaining in connection with the above-identified application, so as to facilitate proceedings in connection therewith. It is respectfully submitted that present submission of this

Terminal Disclaimer does not constitute agreement with, or an admission as to the propriety of, the obviousness-type double patenting rejection; and does not constitute agreement with, or an admission as to the propriety of, arguments made by the Examiner in connection with this obviousness-type double patenting rejection.

In any event, by the present filing of the enclosed Terminal Disclaimer, the obviousness-type double patenting rejection is clearly obviated.

Applicants respectfully submit that all of the claims presented for consideration by the Examiner patentably distinguish over the teachings of the reference applied by the Examiner in the Office Action mailed June 24, 2003, that is, the teachings of U.S. Patent No. 3,591,344 to Schnock, et al., under the provisions of 35 USC §103.

It is respectfully submitted that this reference as applied by the Examiner would have neither taught nor would have suggested such a reactor for producing a high molecular weight polyester as in the present claims, including the recited stirring rotor provided with a plurality of hollow disks, in the longitudinal direction of the stirring rotor, within the cylindrical vessel, and also including, inter alia, wherein the stirring rotor is provided with a support member at an end of the outlet side thereof, the outer diameter of the support member (at the outlet side thereof) being smaller than the outer diameter of the stirring rotor. Note each of claims 1, 2, 6 and 7.

In addition, it is respectfully submitted that the teachings of this applied reference would have neither taught nor would have suggested such a reactor as in the present claims, having the feature of the stirring rotor as indicated previously, and additionally having features as in claims 1, 2, 6 and 7, including wherein the stirring

rotor is provided with the recited scraping vanes and the reactor is further provided with scraping plates between adjacent hollow disks of the stirring rotor (note claims 1, 2, 6 and 7); and/or wherein the stirring rotor within the vessel is divided into a plurality of stirring blocks having structure based upon the viscosity of the liquid feed (see claims 6 and 7).

The invention as claimed in the above-identified application is directed to a reactor for producing, e.g., a high molecular weight polyester. Applicants have found that by, inter alia, providing a support member of the stirring rotor, at the end of the outlet side thereof, having an outer diameter which is smaller than the outer diameter of the stirring rotor, a material having a high viscosity can easily pass through the outlet, so that the reactor can easily and effectively be utilized in forming a high viscosity product. Applicants have further found that by providing stirring blocks having a structure based upon the viscosity of the material at the specific location of a respective stirring block, passing of the material through the reactor can easily and effectively be accomplished, providing a product with a desired high degree of polymerization.

Moreover, utilizing the reactor according to the present invention, the inner end wall surfaces of the vessel can be substantially self-cleaned, to prevent the product from deposition and remaining on surfaces of the reactor.

Schnock, et al. discloses a device for the continuous polycondensation of melts. The device includes a heatable, cylindrical or conical, horizontal or almost horizontal reactor provided with an inlet at one end and an outlet at the other end for the melt and a vapor outlet, the reactor containing a stirrer adapted to the shape of the reactor, the

continuous or discontinuous axis of rotation of which is congruent with the axis of the reactor. The stirrer is subdivided by a plurality of disks in vertical position with respect to its axis, the disks being provided with perforations staggered from disk to disk. This patent goes on to disclose that parallel to the axis of the stirrer a plurality of peripherally arranged, groove- or ribbon-shaped drag elements are provided for, parallel to which and parallel to the axis of the stirrer rod-shaped elements are fixed outside of the range of immersion of the stirrer into the melt, which elements preferably depart from the two outer disks; and when the stirrer rotates the drag elements continuously convey the melt from the bottom of the reactor onto the rod-shaped elements inside of the stirrer where it is uniformly distributed in a thin layer and from where it returns into the melt-containing sump of the reactor. Note from column 2, line 64 to column 3, line 14. See also column 3, lines 32-36 and 66-72; and column 4, line 68 to column 5, line 1. See also column 5, lines 4-6. This patent goes onto disclose that the perforations in the disks may be of round, angular or semicircular shape or may have the shape of a circular segment; and that in one and the same stirrer the perforations in the disks may be of identical shape (Figs. 4a, b, c and e) or they may be of different shape, as shown in Fig. 4d where angular disks alternate with disks of smaller outer diameter. See column 5, lines 26-32.

It is respectfully submitted that the disclosure of Schnock, et al. would have neither disclosed nor would have suggested the reactor as in the present claims, including, inter alia, the relative outer diameters of the support member at the outlet end and of the stirring rotor. While Schnock, et al. discloses different sized angular

disks, it is emphasized that this patent discloses that the angular disks alternate with disks of smaller outer diameters. Moreover, note that, for example, in Fig. 1 seven disks are shown in the reactor, whereby with the sizes of the disks alternating the end disks would have large sizes (that is, with alternating-sized disks, disk 41 is large and disk 42 would also be large). Thus, it is respectfully submitted that the disclosure of Schnock, et al. as a whole would have neither taught nor would have suggested, and in fact would have taught away from, the relative outer diameter sizes of the another support member, at an end of the outlet side, and the outer diameter of the stirring rotor.

The contention by the Examiner that since Schnock, et al., teaches that the disks may be of different shape, it thus would have been an obvious design choice to select an appropriate outer diameter for the support members 41, 42 in the apparatus of Schnock, et al., is respectfully traversed. It is respectfully submitted that particularly in view of the advantages achieved according to the present invention due to the relative outer diameters, as discussed in the foregoing and as is clear from Applicants' disclosure, the conclusion by the Examiner concerning obvious design choice, without any teaching in the art guiding one to such choice, is clearly improper under the requirements of 35 USC §103. See Ex parte Keir, 53 USPQ 140 (PTO Bd. of APP. 1941).

It is respectfully submitted that the conclusions concerning obviousness must be supported by evidence or reasoning. See In re McKellin, 188 USPQ 428 (CCPA 1976). It is respectfully submitted that the Examiner has failed to support the conclusion of

obviousness by appropriate evidence or reasoning, especially in view of the advantages achieved by the present invention due to the relative outer diameters and due to the other aspects of the present invention as in the other claims.

Furthermore, it is respectfully submitted that Schnock, et al. would have neither disclosed nor would have suggested the recited plurality of stirring blocks having structure based upon the viscosity of the liquid feed, as in the present claims. In this regard, and as discussed previously, Applicants have recognized and provided a stirring rotor having different structure based upon the viscosity of the liquid feed. Schnock, et al. at most discloses different sized disks of the rotor, which alternate in size along the reactor, whereby same-sized disks would occur at low-viscosity locations and high-viscosity locations in the reactor. Clearly, Schnock, et al. is not sensitive to the viscosity, with respect to stirring rotor design. It is respectfully submitted that Schnock, et al., even in light of the disclosure of alternating disks with different outer diameters, would have neither disclosed nor would have suggested a structure wherein the stirring rotor is divided into a plurality of stirring blocks having structure based upon the viscosity of the liquid feed, as in the present claims.

Contrary to the conclusion by the Examiner, it is respectfully submitted that the alternating sized disks of Schnock, et al. would not have taught, nor would have suggested, dividing the stirring rotor into a plurality of stirring blocks having structure based upon the viscosity of the liquid feed, as in the present claims.

In view of the foregoing comments and amendments, as well as in view of the presently submitted Terminal Disclaimer, entry of the present amendments and of the

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enclosed Terminal Disclaimer, and reconsideration and allowance of all claims remaining in the application, are respectfully requested.

To the extent necessary, Applicants petition for an extension of time under 37 CFR § 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to the Deposit Account No. 01-2135 (Case No. 500.36898VX1) and please credit any excess fees to such Deposit Account.

Respectfully submitted,

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